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Please amend the application as follows:

In the Claims

Please add Claims 76-102.

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- B<sup>1</sup>
76. (New) Isolated double-stranded RNA of from about 21 to about 23 nucleotides that mediates RNA interference of an mRNA to which it corresponds.
  77. (New) Isolated double-stranded RNA of claim 76 that comprises a terminal 3' hydroxyl group.
  78. (New) Isolated double-stranded RNA of claim 76 which is chemically synthesized RNA or an analog of a naturally occurring RNA.
  79. (New) An analog of isolated double-stranded RNA of claim 76, wherein the analog differs from the double-stranded RNA of claim 76 by the addition, deletion, substitution or alteration of one or more nucleotides.
  80. (New) Isolated double-stranded RNA of from about 21 to about 23 nucleotides that inactivates a corresponding gene by transcriptional silencing.
  81. (New) A pharmaceutical composition comprising double-stranded RNA of from about 21 to about 23 nucleotides that mediates RNA interference and an appropriate carrier.
  82. (New) Isolated DNA comprising DNA encoding double-stranded RNA that is processed in eukaryotic cells to RNA segments of about 21 to about 23 nucleotides in length that mediate RNA interference of mRNA to which the segments correspond.

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83. (New) Isolated DNA comprising DNA encoding double-stranded RNA that is processed in eukaryotic cells to RNA segments of about 21 to about 23 nucleotides in length that inactivate a corresponding gene by transcriptional silencing.
84. (New) Isolated DNA comprising DNA encoding double-stranded RNA that is processed in eukaryotic cells to RNA segments of about 21 to about 23 nucleotides in length that mediate RNA interference of mRNA of a gene.
85. (New) Isolated DNA comprising DNA encoding double-stranded RNA that is processed in eukaryotic cells to RNA segments of about 21 to about 23 nucleotides in length that target mRNA of a protein for degradation.
86. (New) Isolated RNA of from about 21 to about 23 nucleotides that mediates RNA interference of an mRNA to which it corresponds, wherein the isolated RNA is obtained from double-stranded RNA that has been cleaved into fragments of about 21 to about 23 nucleotides.
87. (New) Isolated RNA of claim 86 that comprises a terminal 3' hydroxyl group.
88. (New) Isolated RNA of claim 86 which is chemically synthesized RNA or an analog of a naturally occurring RNA.
89. (New) An analog of isolated RNA of claim 86, wherein the analog differs from the RNA of claim 86 by the addition, deletion, substitution or alteration of one or more nucleotides.
90. (New) Isolated RNA of from about 21 to about 23 nucleotides that inactivates a corresponding gene by transcriptional silencing, wherein the isolated RNA is obtained from double-stranded RNA that has been cleaved into fragments of about 21 to about 23 nucleotides.

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CD<sup>1</sup>.
91. (New) A pharmaceutical composition comprising RNA of from about 21 to about 23 nucleotides that mediates RNA interference of an mRNA to which it corresponds, wherein the isolated RNA is obtained from double-stranded RNA that has been cleaved into fragments of about 21 to about 23 nucleotides.
  92. (New) Isolated DNA comprising DNA encoding RNA of from about 21 to about 23 nucleotides that mediates RNA interference of mRNA to which the RNA correspond.
  93. (New) Isolated DNA comprising DNA encoding RNA of from about 21 to about 23 nucleotides that inactivates a corresponding gene by transcriptional silencing.
  94. (New) Isolated DNA comprising DNA encoding RNA of from about 21 to about 23 nucleotides that mediates RNA interference of mRNA of a gene.
  95. (New ) Isolated DNA comprising DNA encoding RNA of from about 21 to about 23 nucleotides that target mRNA of a protein for degradation.
  96. (New) A method of producing RNA of from about 21 to about 23 nucleotides in length comprising:
    - (a) combining RNA with a soluble extract that mediates RNA interference, thereby producing a combination; and
    - (b) maintaining the combination of a) under conditions in which the RNA is processed to RNA of from about 21 to about 23 nucleotides in length.
  97. (New) The method of Claim 96, wherein the soluble extract is derived from syncytial blastoderm *Drosophila* embryos.
  98. (New) The method of Claim 96 further comprising isolating the RNA of from about 21 to about 23 nucleotides from the combination

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99. (New) RNA of about 21 to about 23 nucleotides produced by the method of Claim 96.
100. (New) A method of producing RNA of from about 21 to about 23 nucleotides in length that mediates RNA interference of mRNA of a gene to be degraded, comprising.
- a) combining RNA that corresponds to a sequence of the gene to be degraded with a soluble extract that mediates RNA interference, thereby producing a combination; and
- b) maintaining the combination of (a) under conditions under which the RNA is processed to RNA of from about 21 to about 23 nucleotides that mediates RNA interference of the mRNA of the gene to be degraded, thereby producing RNA of from about 21 to about 23 nucleotides that mediates RNA interference of the mRNA.
101. (New) The method of Claim 100, wherein the soluble extract is derived from syncytial blastoderm *Drosophila* embryos.
102. (New) The method of Claim 100 further comprising isolating RNA of from about 21 to about 23 nucleotides from the combination.
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#### REMARKS

##### Claim amendments

Claims 76-102 have been added.

Claims 76-85 relate to isolated double-stranded RNA of from about 21 to about 23 nucleotides that mediates RNA interference of an mRNA to which it corresponds. Support for new Claims 76-85 can be found, for example, on page 14, line 21

Claims 86-91 relate to isolated RNA of from about 21 to about 23 nucleotides that mediates RNA interference of an mRNA to which it corresponds, wherein the isolated RNA is obtained from double-stranded RNA that has been cleaved into fragments of about 21 to about 23 nucleotides. Support for new Claims 86-91 can be found, for example, on page 15, lines line 26-28 and page 39, line 11 - page 40, line 7.

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